

Establishing a pharmacy presence in the emergency department: opportunities and challenges in the French setting

Lucien Roulet · Nathalie Asseray · Françoise Ballereau

© Koninklijke Nederlandse Maatschappij ter bevordering der Pharmacie 2014

Abstract Overview of clinical pharmacy practice around the world shows that pharmaceutical services in emergency departments (EDs) are far less common in Europe than in North America. Reported experiences have shown the impact of a clinical pharmacy service on drug utilisation and safety issues. This commentary presents the implementation of a pharmacy presence in the ED of a French tertiary care hospital. Our experience helps to define the role of the clinical pharmacist in the ED, including patient interviewing, providing medication reconciliation, promoting drug safety, and supporting specific interventions to improve quality of care and patient safety. The role of ED pharmacists in the improvement of quality of care is not necessarily limited to drug therapy, e.g. by helping outpatients to access care and treatment facilities as best suits their needs. Challenges of implementing ED pharmacy services have been identified well, but still require developing strategies to be overcome.

Keywords Continuity of care · Emergency department · France · Implementation of clinical pharmacy services · Literature review

Impact of findings on practice

- ED clinical pharmacists may promote a new form of therapeutic patient education, e.g. by helping outpatients to access care and treatment facilities as best suits their needs.
- Developing ED clinical pharmacy activities may particularly contribute to global improvement in continuity of care, with expected impact beyond this ward.

Introduction

Clinical pharmacy services in emergency departments (EDs) are well-established in North America, but far less common in Europe. As part of a research program on adverse drug events in ED patients [1], we have had the opportunity to set up various clinical pharmacy services in our ED.

This commentary addresses the challenges and opportunities of implementing ED clinical pharmacy services in the French setting through an overview of practice around the world, and a summary of our experiences.

Overview of clinical pharmacy practice in ED around the world

Movement toward the establishment of pharmacy services in EDs in the United States is long-standing [2–4]. In the

L. Roulet
Emergency Department, Teaching Hospital, Nantes, France

L. Roulet (✉) · N. Asseray · F. Ballereau
Faculty of Medical Sciences, UPRES EA 3826, 1 rue Gaston
Veil, 44035 Nantes, France
e-mail: lucien.roulet@gmail.com

N. Asseray
Infectious Diseases Department, Teaching Hospital, Nantes,
France

F. Ballereau
Medqual, Teaching Hospital, Nantes, France

1970s, the pharmacist's role in emergency care was limited to participation on cardiopulmonary resuscitation teams, or to the preparation and distribution of emergency drugs [2, 4]. Nearly 30 years later, the American Society of Health-System Pharmacists (ASHP) accredited an emergency medicine specialty pharmacy residency program [5]. Within this period, the provision of clinical pharmacy services in EDs was shown to reduce the number of prescribing errors and medication costs [2, 6, 7], leading to a gradual increase in the responsibilities assigned to ED pharmacists [8].

In 2009, a systematic literature review ascertained the scope and impact of the services that can be provided in EDs by a clinical pharmacist [9]. The authors recommended use of these data as justification to ED care teams or regulatory bodies for implementing or sustaining ED clinical pharmacy positions. This review focused only on articles describing the services of pharmacists who routinely practiced in EDs. Between 1976 and 2008, only 12 institutions reported ED clinical pharmacy services meeting this criterion (11 in the United States and 1 in Canada), in some cases with a 24/7 pharmacist coverage. The pharmacists' activities reported in more than half of these establishments were:

- participation in drug distribution activities;
- answering drug information questions;
- counselling patients on inpatient and outpatient therapy;
- performing therapeutic drug monitoring;
- aiding in poisoning/toxicology cases;
- providing staff education;
- serving as preceptors to students.

The authors underscored that “the ED is a setting fertile for novel programs and unique practices developed to meet the demand and need of the patients and the community”, what is confirmed by our experience [1, 10–12]. However, they complained that the practice was not standardised, with a large variation among institutions in activities and allocated resources.

Aside from the United States and Canada [9, 13], ED clinical pharmacy services had also been established in other English-speaking countries such as Australia [14, 15], and the United Kingdom [16, 17].

In mainland Europe, ED clinical pharmacy experiences have been scarcer and mostly consist in specific studies [18, 19]. Our literature review found only one experience in Belgium, where a pharmacy presence has been established for several years in the ED of Leuven University Hospital, with a multipurpose clinical pharmacy activity and research on ED medication reconciliation [20, 21].

These data highlight the insufficient presence of European clinical pharmacists in EDs and the need to develop more pharmacy services in this setting.

Establishing a clinical pharmacy service in a French teaching hospital

To the best of our knowledge, we are presenting the first summary of experiences of a pharmacy presence in an ED in France. Some of these experiences were previously described and will thus not be detailed in this report.

Surrounding context

As part of a scientific program aimed at supporting interventions and research projects in the area of adverse drug event (ADE) prevention and management, we have established a sustainable clinical pharmacy presence in the ED of a French 3000-bed tertiary care hospital [1]. This department includes a number of complementary medical units, thereby ensuring coherence in ED patient care, from pre-hospital care (mobile emergency and resuscitation service) to acute or non-acute care hospitalisation, including an emergency room for medical, traumatological, pediatric or psychiatric emergencies (but not gynaeco-obstetrical emergencies). In conjunction with this ED organisation, many diverse activities have been set up.

Experiences in the emergency room

In the emergency room we developed mainly the patient interview and medication reconciliation [1]. A questionnaire was developed to document self-medication history in adult patients visiting EDs [11, 12]. We also examined the issue of food-drug interactions by estimating the prevalence of grapefruit consumption in patients admitted to our ED and its potential impact on the risk of fruit-drug interaction [10].

This experience also showed that the role of ED pharmacists in the improvement of quality of care is not necessarily limited to drug therapy. In our interview process, we developed procedures to identify socially vulnerable outpatients visiting the ED (see “Appendix”), using a validated questionnaire [22]. An analysis of their characteristics showed that this use of ED care was more inappropriate than in the general population, and that there existed more unmet health care needs in this subgroup

(data not shown). Systematically identifying socially vulnerable outpatients at ED admittance would therefore represent a major step forward in improving care management for these patients. Furthermore, this experience underscores how the clinical pharmacist may contribute to ED management of incoming patient flows, by sorting out the patients with a real need for ED care from those who feel a need for ED care but do not really require it. This perspective would entail sustained expertise sharing among health professionals. It implies that ED clinical pharmacists will be promoting a new form of therapeutic patient education, beyond the limited scope of drug therapy, by helping outpatients to access care and treatment facilities as best suits their needs.

Experiences in the hospitalisation units

In our institution, patients can be discharged from the emergency room either to acute beds (maximum length of stay: 48 h) or to non-acute beds (mean length of stay: 6 days).

In this area, we have implemented the usual clinical pharmacy services, including: participation on medical rounds; answering drug information questions; counselling patients on their therapy; and obtaining self-medication histories.

Specific interventions to improve quality of care and patient safety have also been conducted:

- implement automatic calculation of estimated glomerular filtration rate (according to the Modification of Diet in Renal Disease equation) in the laboratory tests prescribed at ED admittance;
- include pharmaceutical comments in the templates of drug prescriptions at ED discharge;
- standardise drug treatment guidelines between the different units of the ED;
- provide nursing staff with information to promote proper use of the different pharmaceutical dosage forms (e.g., tablets that should not be split or crushed, or patches that should not be cut in half);
- participate in reviewing errors related to medications and medical devices through an in-depth and structured assessment process with risk management groups;
- edit yearly scorecards to monitor ED pharmaceutical expenditures;
- audit clinical practices by examining early switch from intravenous to oral therapy for drugs with excellent oral bioavailability.

Daily presence and close involvement in clinical activities ensured an opportunity to promote drug safety. Advocating pharmacovigilance was actually a major issue

in our ED where ADEs had been underreported in comparison with other medical departments.

Assessment of the project

Human and material resources requirement

Four to 6 pharmacy students (fifth-year professional degree) completed a 3-month course in our ED on weekday mornings as part of their university hospital internship. One clinical pharmacist ensured management and coordination of the project, in collaboration with the ED medical staff and under the supervision of a university professor in clinical pharmacy. Given these limited resources, some of the described experiences were implemented sequentially and only for a specific period.

Material resources included supplies of workplace and basic computer equipment, and access to main drug databases.

Acceptability

Acceptance by patients and ED medical and non-medical staff was excellent.

Pharmacy students benefited from their participation in the project and expressed general satisfaction. In particular, they were introduced to the ADE identification process, performed medication reconciliation and could directly interact with health providers.

Funding requirement and continuation

No funding was granted for this experimental phase. Since then, pharmaceutical services have been made sustainable in the emergency room, where patient interview and medication reconciliation have been continuously performed by pharmacy students under the supervision of a senior clinical pharmacist. Nevertheless, organising, managing and ensuring continuity of all the described activities at once would undoubtedly require long-term sustained financing, especially in non-academic institutions where no pharmacy student can participate in clinical pharmacy services. In particular, when establishing clinical pharmacy services in an ED and defining the human resources to be invested, the specific continuous care organisation required in the ED should be taken into account. In all published experiences, increased involvement of clinical pharmacists in ED care necessitated adaptation to ED constraints and a gradually prolonged provision of uninterrupted pharmaceutical services over days and weeks. Some data in the Cohen systematic review seems to support that creation of an ED pharmacist position would avoid the assumed cost, suggesting satisfactory return-on-investment [9]. Nevertheless, the generalisation of these results should take into account the difference in salaries

between hospital pharmacists in North America and Europe. Finally, retaining the help of other professionals such as pharmacy technicians could be an option facilitating expansion of pharmacists' involvement in the ED [8].

Insurmountable challenges or promising perspectives?

Our experience gives evidence that establishing a pharmacy presence in the ED of a French hospital is feasible. The challenges and opportunities of implementing ED clinical pharmacy services in the French setting can be addressed through the analysis of both personal and external experiences.

In a commentary published in 2005, Cobaugh and Schneider gave a personal assessment of clinical pharmacy services in ED, identifying opportunities and proposing outlooks for further development of ED clinical pharmacy services [23]. They called for increased responsibilities for clinical pharmacists in all aspects of the medication-use process in the ED, an increased number of ED-based training opportunities for pharmacy students, and an increased contribution of pharmacists to research in emergency care. They also supported involvement of ED pharmacists in medical and paramedical educational programs, as well as in policies related to emergency medicine.

Almost 10 years later, this ambitious roadmap still remains relevant. Under the leadership of The Joint Commission, the ASHP and the Agency for Healthcare Research and Quality, several initiatives have arisen to provide information and resources that can be used by hospitals considering the implementation of an emergency pharmacist program [24, 25]. These must-read guidelines present key strategies to address the challenges of implementing pharmacy services in ED. However, despite the fact that professional stakeholders provide a highly favorable framework for ED clinical pharmacy to develop in the United States [25], a few years ago only a small number of hospitals included pharmacists in their emergency care teams [9].

This situation illustrates the difficulties inherent in establishing a pharmacy presence in an ED. The major challenges to setting up ED pharmacy services and strategies for overcoming these challenges were identified in the 2007 ASHP patient care impact program [25]. According to our experience, ED clinical staff support comes naturally with the increased involvement of clinical pharmacists in ED activities. Most of the time, the need to gain hospital administration approval implies that only on their own clinical pharmacists can install ED services, and afterwards provide evidence of their impact on emergency care outcomes and provider and patient satisfaction. In our opinion, establishing sustainable pharmacist presence within an ED and expanding workflow in the ED are the main issues still

to be solved in most facilities, which seems unrealistic without specific funding.

The choice of prioritising the implementation of clinical pharmacy services in the ED largely depends on local strategic policies. Other wards (e.g., geriatrics, pediatrics, or intensive care units) also care for vulnerable patients who would greatly benefit from a pharmaceutical presence. However, EDs serve as a unique interface between hospitals and communities. In this context, developing ED clinical pharmacy activities may particularly contribute to global improvement in continuity of care, with expected impact beyond this ward.

In conclusion, the current report gives input aimed at helping to define the role of the clinical pharmacist in the ED of a French health care facility. Further experiments in various settings are now required to solve the remaining challenges and promote clinical pharmacy activity in EDs.

Acknowledgments The authors would like to thank Drs Antoine Dupuis and Marie-Line Mottier for reviewing this article.

Funding None.

Conflicts of interest The authors have no conflict of interest to declare.

Appendix

Socially vulnerable outpatients are patients with unmet health care needs in relation with their social situation. A questionnaire was developed to identify socially vulnerable outpatients visiting the ED through the following 5 characteristics: [22]

- eligibility for “Aide Médicale d’Etat” (State Medical Assistance—this public program allows undocumented migrants to access health care free of charge), or “Couverture Maladie Universelle” (Universal Health Coverage—anyone legally residing in France for at least 3 months is entitled to this basic health insurance that covers approximately 65 % of expenses);
- eligibility for one or more social benefits (e.g., unemployment benefit, invalidity pension, old age pension...);
- searching for an employment for at least 6 months, or for a first job;
- no subscription to supplemental health insurance;
- subjective perception of having difficulty paying for medicines or medical examinations.

References

1. Roulet L, Asseray N, Dary M, Chiffolleau A, Potel G, Ballereau F. Implementing a clinical pharmacy survey of adverse drug events

- in a French emergency department. *Int J Clin Pharm*. 2012;34(6): 902–10.
2. Elenbaas RM, Waeckerle JF, McNabney WK. The clinical pharmacist in emergency medicine. *Am J Hosp Pharm*. 1977;34(8): 843–6.
 3. Whalen FJ. Cost justification of decentralized pharmaceutical services for the emergency room. *Am J Hosp Pharm*. 1981;38(5): 684–7.
 4. Powell MF, Solomon DK, McEachen RA. Twenty-four hour emergency pharmaceutical services. *Am J Hosp Pharm*. 1985;42(4): 831–5.
 5. American Society of Health-System Pharmacists. ASHP statement on pharmacy services to the emergency department. *Am J Health Syst Pharm*. 2008;65:2380–3.
 6. Berry NS, Folstad JE, Bauman JL, Leikin JB. Follow-up observations on 24-hour pharmacotherapy services in the emergency department. *Ann Pharmacother*. 1992;26(4):476–80.
 7. Lada P, Delgado G Jr. Documentation of pharmacists' interventions in an emergency department and associated cost avoidance. *Am J Health Syst Pharm*. 2007;64(1):63–8.
 8. Randolph TC. Expansion of pharmacists' responsibilities in an emergency department. *Am J Health Syst Pharm*. 2009;66(16): 1484–7.
 9. Cohen V, Jellinek SP, Hatch A, Motov S. Effect of clinical pharmacists on care in the emergency department: a systematic review. *Am J Health Syst Pharm*. 2009;66(15):1353–61.
 10. Roulet L, Asseray N, Mottier ML, Chiffolleau A, Potel G, Lapeyre-Mestre M, et al. Grapefruit consumption and food-drug interaction hazard. *Therapie*. 2011;66(5):421–9.
 11. Roulet L, Asseray N, Foucher N, Potel G, Lapeyre-Mestre M, Ballereau F. Self-medicating behaviours in patients admitted to a medical emergency department. *Therapie*. 2012;67(5):447–55.
 12. Roulet L, Asseray N, Foucher N, Potel G, Lapeyre-Mestre M, Ballereau F. A questionnaire to document self-medication history in adult patients visiting emergency departments. *Pharmacoepidemiol Drug Saf*. 2013;22(2):151–9.
 13. Kent AJ, Harrington L, Skinner J. Medication reconciliation by a pharmacist in the emergency department: a pilot project. *Can J Hosp Pharm*. 2009;62(3):238–42.
 14. Welch SA, Gaudins LV. Scope of pharmacy services to the emergency department. *J Pharm Pract Res*. 2007;37(1):27–9.
 15. Mortimer C, Emmerton L, Lum E. The impact of an aged care pharmacist in a department of emergency medicine. *J Eval Clin Pract*. 2011;17(3):478–85.
 16. Collignon U, Osborne CA, Kostrzewski A. Pharmacy services to UK emergency departments: a descriptive study. *Pharm World Sci*. 2010;32(1):90–6.
 17. Mills PR, McGuffie AC. Formal medicine reconciliation within the emergency department reduces the medication error rates for emergency admissions. *Emerg Med J*. 2010;27(12):911–5.
 18. Cadiou G, Varin R, Levesque H, Grassi V, Benichou J, Tiret I, et al. Risk factors of vitamin K antagonist overcoagulation. A case-control study in unselected patients referred to an emergency department. *Thromb Haemost*. 2008;100(4):685–92.
 19. Gammelgaard LG, Nørskov MN, Trolle S, Berlac P, Tomsen DV. Implementation of front-line clinical pharmacy in an emergency department. *Eur J Hosp Pharm*. 2012;19:228–9.
 20. De Winter S, von Winckelmann S, Spriet I, Knockaert D, Willems L. Measuring the activities of a clinical pharmacist on sequential treatment on the emergency department (Poster: PEC-232). 36th European symposium of clinical pharmacy, Turkey. *Pharm World Sci*. 2007;30(5):649–740.
 21. De Winter S, Vanbrabant P, Spriet I, Desruelles D, Indevuyst C, Knockaert D, et al. A simple tool to improve medication reconciliation at the emergency department. *Eur J Intern Med*. 2011; 22(4):382–5.
 22. Pascal J, Abbey-Huguenin H, Agard C, Asseray N, Billaud E, Baron D, et al. Development of a tool for the identification of socially vulnerable hospital patients. *Presse Med*. 2004;33(11):710–5.
 23. Cobaugh DJ, Schneider SM. Medication use in the emergency department: why are we placing patients at risk? *Am J Health Syst Pharm*. 2005;62(17):1832–3.
 24. Fairbanks RJ, Rueckmann EA, Kolstee KE, Hays DP, Cobaugh DJ, Wears RL, et al. Clinical pharmacists in emergency medicine. In: Henriksen K, Battles JB, Keyes MA, Grady ML, editors. *Advances in patient safety: new directions and alternative approaches*. Vol. 4. Technology and medication safety. AHRQ Publication No. 08-0034-4. Rockville, MD: Agency for Healthcare Research and Quality; August 2008.
 25. Witsil JC, Aazami R, Murtaza UI, Hays DP, Fairbanks RJ. Strategies for implementing emergency department pharmacy services: results from the 2007 ASHP Patient Care Impact Program. *Am J Health Syst Pharm*. 2010;67(5):375–9.